In the Claims:

1. (Currently Amended) An apparatus for processing auscultation signals, comprising:

a bias processor that receives an auscultation signal from a single channel input and provides a biased auscultation signal representing the envelope of the auscultation signal received, said bias processor comprising an envelope detector; and

an estimator that calculates a signal ~~representative of an estimate~~ that represents an estimated rhythm of the ~~received~~ auscultation signal received from the single channel input, the estimator selecting ~~at least~~ a part of the biased auscultation signal as a first signal, and calculating a conformity between the first signal and the biased auscultation signal.

2. (Previously Presented) The apparatus according claim 1, the estimator applying a cross-correlation function.

3. (Previously Presented) The apparatus according to claim 1, the first signal representing one of a succession of cycles of the biased auscultation signal.

4. (Previously Presented) The apparatus according to claim 1, the estimator applying an auto-correlation function.

5. (Previously Presented) The apparatus according to claim 1, a quality of the received auscultation signal being validated by verifying at least one of three items in a signal representing a conformity of the received auscultation signal, the three items comprising:

a) time differences between located extreme values being within predetermined limits;

b) minimum and maximum time differences in proportion to a mean of the time differences being within predetermined limits; and

c) a magnitude of a correlation result at the extreme values location being within predetermined limits.

6. (Previously Presented) The apparatus according to claim 1, the bias processor comprising a filter that calculates one of an A-weighted version of the received auscultation signal, and an approximated A-weighted version of the received auscultation signal.

7. (Previously Presented) The apparatus according to claim 6, the A-weighted version of the auscultation signal being calculated by an approximation corresponding to a double differentiation of the received auscultation signal.

8. (Currently Amended) The apparatus according to claim 1, the bias processor comprising an adaptive band-pass filter that filters signals provided by the envelope detector, said adaptive band-pass filter having at least an upper pass-band and a lower pass-band, respectively selectable, and a controller that selects the lower pass-band when a relatively large fraction of a signal input to the adaptive band-pass filter has a low frequency and selects the upper pass-band when a relatively low fraction of a signal input to the band-pass filter has a low frequency.

9. (Currently Amended) The apparatus according to claim 1, the received auscultation signal comprising samples that arrive at a sample rate, the apparatus further comprising:

a synchronous processor that operates at a rate corresponding to the sample rate; and

an asynchronous processor that operates time intervals initiated by a request.

10. (Previously Presented) The apparatus according to claim 1, comprising a stethoscope that estimates a rhythm in the received auscultation signal.

11. (Currently Amended) An apparatus for estimating a rhythm in auscultation signals, comprising:

a bias processor that receives an auscultation signal from a single channel input and provides a biased auscultation signal, the bias processor comprising an envelope detector; and

an estimator that calculates a signal representative of an estimated rhythm of the ~~received~~ auscultation signal received from the single channel input, the bias processor

comprising a filter having a frequency response corresponding to at least one of an A-weighing and an approximated A-weighing for a frequency range of interest.

12. (Previously Presented) The apparatus according to claims 11, the auscultation signal being filtered with a filter having frequency response corresponding to a double differentiation.

13. (Previously Presented) The apparatus according to claims 11, the frequency range of interest being in a frequency range of less than 2000Hz.

14. (Currently Amended) A method of processing auscultation signals, comprising:
receiving an auscultation signal from a single channel input; providing a biased auscultation signal;
calculating a signal representative of an estimated rhythm of the auscultation signal received from the single channel input;
the estimated rhythm being calculated by selecting ~~at least~~ a part of the biased auscultation signal as a first signal and calculating a conformity between the first signal and the biased auscultation signal.

15. (Previously Presented) The method according to claim 14, further comprising applying a cross-correlation function to calculate the representative signal.

16. (Previously Presented) The method according to claim 14, the selected part of the biased auscultation signal representing one of a succession of cycles of the biased auscultation signal.

17. (Previously Presented) The method according to claim 14, further comprising:
applying an auto-correlation function to calculate the representative signal.

18. (Currently Amended) ~~A~~ The method according to claim 14, further comprising

validating a quality of the received auscultation signal by verifying at least one of three items in a signal representing a conformity of the received auscultation signal, the three items comprising:

a) time differences between located extreme values being within predetermined limits;

b) minimum and maximum time differences in proportion to a mean of the time differences being within predetermined limits; and

c) a magnitude of <u>the result of</u> a correlation result at the extreme values location being within predetermined limits.

19. (Previously Presented) The method according to claim 14, further comprising:

calculating one of an A-weighted version of the received auscultation signal and an approximated A-weighted version of the received auscultation signal.

20. (Previously Presented) The method according to claim 14, the A-weighted version of the received auscultation signal being calculated using an approximation corresponding to a double differentiation of the received auscultation signal.

21. (Previously Presented) The method according to claim 14, further comprising:

filtering the biased auscultation signal using an adaptive band-pass filter, said adaptive band-pass filter having at least an upper pass-band and a lower pass-band respectively selectable, and being controlled such that the lower pass-band is selected when a relatively large fraction of a signal input to the adaptive band-pass filter has a low frequency and such that the upper pass-band is selected when a relatively low fraction of a signal input to the band-pass filter has a low frequency.

22. (Previously Presented) The method according to claim 14, the received auscultation signal comprising samples that arrive at a sample rate, the method further comprising:

executing synchronous steps at a rate corresponding to the sample rate, and

executing asynchronous steps at time intervals initiated by a request.

23. (Currently Amended) A method for estimating a rhythm in auscultation signals, comprising:

receiving an auscultation signal from a single channel input;

providing an biased auscultation signal; and

calculating a signal representative of an estimated rhythm of the received auscultation signal received from the received from the single channel input, the signal representative of the estimated rhythm being calculated using a filter having a frequency response corresponding to at least one of an A-weighting and an approximated A-weighting for a frequency range of interest.

24. (Previously Presented) The method according to claim 23, the frequency response being obtained using a double differentiation.

25. (Previously Presented) The method according to claim 14, the frequency range of interest being in a frequency range of less than 2000Hz.